DATA CONVERSION STANDARDS

Department of Transportation

DELPHI Program

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Introduction

Purpose

The purpose of this document is to introduce standards that will be used during the design, development and execution of automated data conversion programs for the DELPHI project. Automated conversion programs are developed to translate data extracted from legacy systems, such as DAFIS, into new application systems, such as DELPHI. As documented in the Conversion Strategy document, several different types of conversion programs may need to be developed. Therefore, standards are established to assist the DELPHI conversion builders in developing these automated conversion processes.

Conversion standards will evolve over the life of the DELPHI program and will require periodic revisions. This document will be redistributed after each revision.

Scope

This document defines the data conversion standards for the DELPHI Program in the following areas:

- Data Conversion Environment Standards
- Naming Standards for the Data Conversion Programs
- Data Conversion Program Design Document Standards
- Data Conversion Testing Standards
- Delivery and Acceptance Standards

Related Documents

1. Data Audit Strategy for the DELPHI Program
2. Data Conversion Strategy for the DELPHI Program

Conversion Environment Standards

The following software and hardware environment standards are components of the automated data conversion process:

Software

The applications to be used for the DAFIS to DELPHI data conversions includes:

DAFIS/MIR Environment (Source)

- DAFIS and its Data Warehouse (MIR)

DELPHI Environment (Target)

- Oracle Financial Applications release 11.0, U.S. Federal release 2.0

Hardware Environment

The hardware and operating system software of the automated data conversion effort include:

DAFIS Environment:

- IBM Mainframe
- MVS/ESA
- Software AG ADABAS database
- 3270 Terminal emulation

MIR Environment:

- Digital Equipment 4100 Server
- UNIX
- Oracle 7.3 database

DELPHI Environment:

- Application, Database & Web Servers
- UNIX
- Java Enabled Web Browser
- Oracle 8 RDBMS
- Windows based Web Clients

Network/File Transport

The communications environment for the automated data conversion includes:

Existing file transfer and network system:

- ADTN 2000

Planned file transfer and network system:

- DOT IDN
- ADTN 2000

Data Conversion Program Naming Standards

Naming conventions and standards will be used when developing automated data conversion programs in both the DAFIS environment, such as download programs, as well as in the DELPHI environment. This standardization will assist DELPHI users and developers to identify and categorize of these programs.

The following tables will be used to identify and track the name for automated data conversion programs.

Table 1: Program Naming Convention Table

Business Object	Conversion Program/Report Program	DAFIS File Name	File Location	Output Oracle Table or ASCII File
Vendor	VENDOWN	CZDF.SBPAT.XXXX.XXXXX	DAFIS	DELPHI_TEST_VENDOWN
Customer	CUSDOWN	CZDF.SBPAT.XXXX.XXXXX	DAFIS	DELPHI_TEST_CUSDOWN

Data Conversion Program Design Document Standards

As detailed in the Data Conversion Strategy document, several programs may need to be written for an automated data conversion from DAFIS and its data warehouse to the Oracle DELPHI system. These programs are:

Download Program - used to extract identified data elements from DAFIS to an ASCII or Oracle based table.

Upload Program - moves data, validates data, and inserts/updates standard values necessary for default fields.

Translation Program - translates data legacy from temporary interface tables into useful data for the Oracle applications (i.e., date reformatting).

Interface Program - populates the production Oracle DELPHI database as well as performing validation which mirrors the validation from the GUI Oracle forms.

Design standards for these programs will be recorded. The goal of the design document is to clearly communicate the features of the data conversion program. It will contain all the information necessary to educate someone who has no prior knowledge of the requirements or business environment.

There are three stages of the design document and each is written for a different audience. Each stage incorporates the components of the prior stages.

Design Stage	Audience	New Components
1. Functional Design	Users, Technical designer	Topical Essay Report Descriptions E/R Diagrams Data-flow Diagrams Open/Closed Issues
2. Technical Design	Programmers	Data Conversion and Report Logic Database Design Integration Issues
3. Final Design	DOT MIS Staff	Implementation Notes

The final design stage is completed after the data conversion program is complete. The complete design document becomes the on-site technical reference manual for the data conversion program and will be updated whenever additional features are added.

Functional Design

The functional design is to describe all of the features of the data conversion program as they will appear to the user. It also serves as the user reference manual for the data conversion program. The functional design includes form and report descriptions presented in the same format as the standard Oracle Application reference manuals.

Topical Essay

The topical essay summarizes the requirements and present the features of the solution. It explains how the data conversion program is used prior to commencing normal business operations.

The topical essay includes the following sections:

Introduction Data conversion program description and listing of the components of the data conversion.

Basic Business Needs	Business needs that the data conversion program must satisfy. These will be at a higher level than functionality.
Major Features	The major features of the data conversion program and the benefits they provide. The description of each feature is brief. Additional detail is found in the User Procedures section or in the form and report descriptions of the Functional design.
Definitions	The definitions of unique terms referenced in the design document.
User Procedures	The steps the user will follow to use the data conversion program.
Examples	(Optional) One or more examples that illustrate the features.
Diagrams	(Optional) Entity relationship diagrams and data-flow diagrams which are included if new database entities are being added and there are major interactive processes. Oracle Designer/2000 and Visio templates will be used to create the diagrams.
Assumptions	Any assumptions regarding the business process or environment that the design is based upon.

Additional sections may be added as required. (typically between Definitions and Assumptions). Diagrams and illustrations are used where appropriate.

Report Description

Report descriptions include the required input parameters, sample report output, and descriptions of each column and data element on the report. The derivation of calculated values are included.

Concurrent Program Description

This defines the required input parameters, sample log output, and provides a description of the changes to business data.

Technical Overview

The technical overview describes the technical approach to implement the customization. Detailed logic specific to a module is not included—This section describes the overall technical flow and how the individual modules work together.

Open/Closed Issues

As issues are identified throughout the design and development process, they are documented according to the issue management procedures in the DELPHI Control and Reporting Procedures. They will also be identified in this document.

Open Issues	All unresolved issues are assigned a number and included here. Possible resolutions may be listed.
Closed Issues	When an issue is resolved, it is moved from Open Issues into Closed issues (the issue number is not changed). An explanation of the resolution is included.

Technical Design

The technical design document is the set of instructions given to a developer to code the data conversion modules. It includes all calculations and conditional logic required in the code.

Technical Overview

This is carried forward from the Functional Design and expanded for the Technical Design. It describes the technical approach planned to implement the data conversion programs. It does not include detailed logic that is specific to a module. This section describes the overall technical flow and how the individual modules will work together.

Data Conversion and Report Program Logic

This section is used for the data conversion program as well as reports. It includes:

Overview	Technical overview of the program.
Calling Arguments	Description of each argument passed to the program, its data type, and valid values.
Log Output	Sample output of the concurrent manager log (this is distinct from report output that is documented in the Report Description).
Table and View Usage	List of tables accessed with the type of access indicated.
Program Logic	Pseudo-code of program logic. Recommended pseudo code style is based on PL/SQL.
SQL Statements	Specific SQL statements used to select, insert, update, and delete data in the program.
Default Data Sources	For a report, this lists the source of values included on the report. For programs that update tables or write conversion files, this lists the source of each data element. This includes conditional logic for derived data.
Validation Logic	Specific validations. It also includes error and warning conditions.
Incompatibility	List of other programs that are incompatible. This information is used when the program is registered in Application Object Library.
Performance Considerations	Descriptions of factors that may affect performance.
Other Considerations	Any other considerations plus description of a restart strategy and crash recovery techniques.

Integration Issues

This section describes issues that affect other products or other data conversion programs. It includes:

Changes Required	Any changes required in other custom programs to support this data conversion program. Usually changes or extensions to standard product modules are covered elsewhere in the design document. This topic covers changes in other data conversion programs that may have already been designed.
Shared Components	List of tables, views, and sequences that are owned by other products that this data conversion program uses.
Alert Conditions	Any conditions that are candidates for Oracle Alert messages.
Incompatibilities	List of incompatibilities with other product modules.
Performance Issues	Performance issues that are influenced by other products. This information is used to determine optimal tablespace location.

Final Design

The final design includes any updates to the design document made during development, completed test plans, copies of sign-off sheets, scope control documents, and an implementation component.

The implementation component describes how the data conversion is implemented. It includes:

Design Summary	Description of the design process followed for this data conversion program. It also includes a description of sign-off procedures and who approved each design.
Coding Summary	Description of the coding phase. It also names the developers assigned to each module.
Testing Summary	Description of how the data conversion programs are tested and who performed the testing.
Installation	Description of how the modules are installed, location of files, custom menus, etc.

Data Conversion Testing Standards

The conversion project deliverables will be tested and approved by the DELPHI and OA representatives who are responsible for the success of the conversion project. Three levels of conversion testing have been identified and described in the Prepare Conversion Test Plans deliverable (C.CV.080). The following is an example of the criteria which will be used while performing business object and conversion validation testing:

Application	Business Object	Test Criteria	Tolerance
General Ledger	Beginning Balances	Record Counts	0%
		Hash Totals	1%
		Balances	0%
		Journal Debits and Credits	0%

Data Conversion Delivery and Acceptance Standards

Delivery

All data conversion processing output including, statistics, reports, and test validation will be delivered following successful business system testing.

Data Acceptance

Conversion data acceptance criteria includes the following:

- ability to update the data which has been converted into DELPHI
- ability to reconcile financial information which was converted from DAFIS to DELPHI
- definition and acceptance of account level variances from DAFIS to DELPHI